

Resonant Structure Due to Planets

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If there are planets orbiting in a system which also has a debris disk, then they will impose structure on that disk. This structure is potentially observable, leading to the exciting prospect of detecting planets in systems indirectly by looking at the morphology of their debris disks. The interaction of a disk with a planet's gravitational resonances can cause material to become trapped in those resonances; such resonances cause the material to be concentrated in clumps which orbit the star with the planet. In this talk, I will review the mechanisms by which planetary resonances cause structures in debris disks as well as the types of structures which we can expect to observe. I will also discuss the extent to which planetary resonances will be a help or a hindrance to planet detection using TPF/Darwin.

